



**THE DATASHEET OF  
04025U0R5BAT2A**



# RF/Microwave Capacitors

## RF/Microwave C0G (NP0) Capacitors

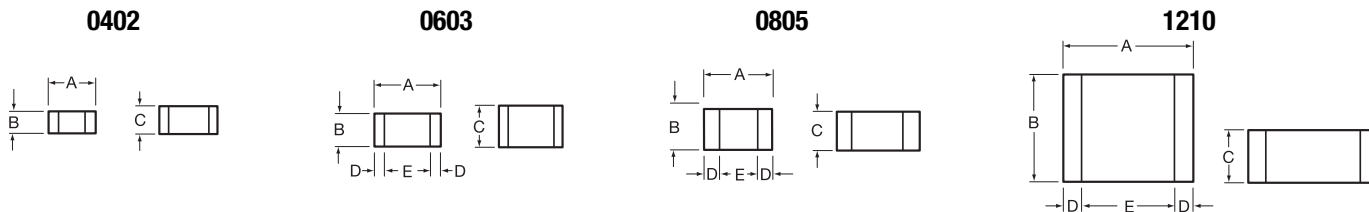
### Ultra Low ESR "U" Series, C0G (NP0) Capacitors (RoHS)



#### GENERAL INFORMATION

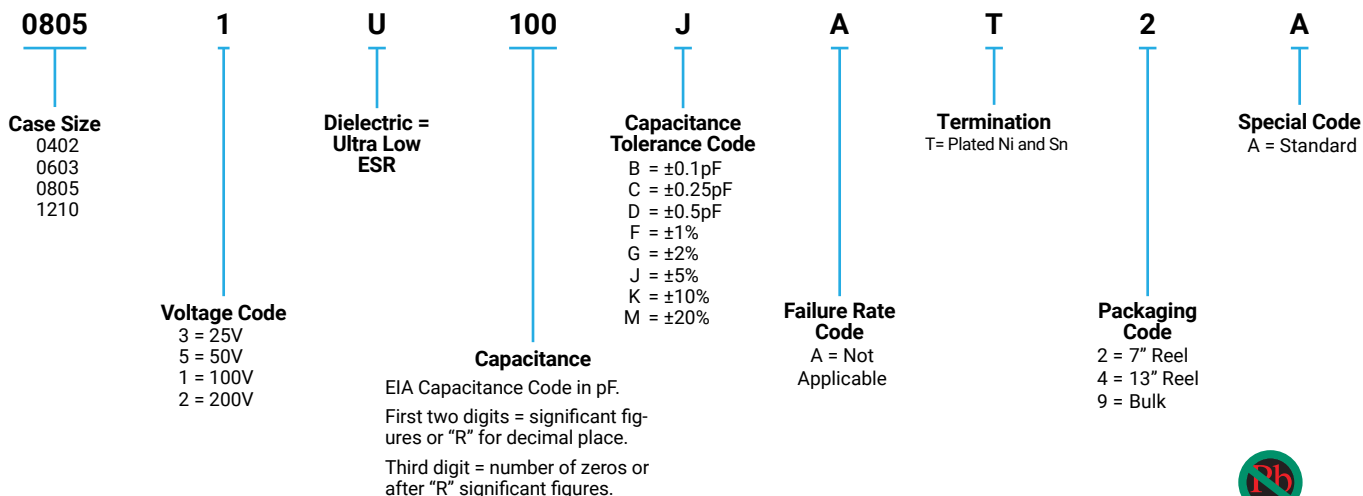
"U" Series capacitors are C0G (NP0) chip capacitors specially designed for "Ultra" low ESR for applications in the communications market. Max ESR and effective capacitance are met on each value producing lot to lot uniformity. Sizes available are EIA chip sizes 0603, 0805, and 1210.

#### DIMENSIONS: inches (millimeters)



Size	A	B	C	D	E
0402	0.039±0.004 (1.00±0.1)	0.020±0.004 (0.50±0.1)	0.024 (0.6) max	0.010 ± 0.006 (0.25 ± 0.15)	0.014 (0.36) min
0603	0.060±0.010 (1.52±0.25)	0.030±0.010 (0.76±0.25)	0.036 (0.91) max	0.010 ± 0.005 (0.25 ± 0.13)	0.030 (0.76) min
0805	0.079±0.008 (2.01±0.2)	0.049±0.008 (1.25±0.2)	0.045 (1.15mm) max	0.020 ± 0.010 (0.51 ± 0.254)	0.020 (0.51) min
1210	0.126±0.008 (3.2±0.2)	0.098±0.008 (2.49±0.2)	0.055 (1.40mm) max	0.025 ± 0.015 (0.635 ± 0.381)	0.040 (1.02) min

#### HOW TO ORDER



#### ELECTRICAL CHARACTERISTICS

##### Capacitance Values and Tolerances:

- Size 0402 - 0.2 pF to 22 pF @ 1 MHz
- Size 0603 - 1.0 pF to 100 pF @ 1 MHz
- Size 0805 - 1.6 pF to 160 pF @ 1 MHz
- Size 1210 - 2.4 pF to 1000 pF @ 1 MHz

##### Temperature Coefficient of Capacitance (TC):

0±30 ppm/°C (-55° to +125°C)

##### Insulation Resistance (IR):

- 10<sup>12</sup> Ω min. @ 25°C and rated WVDC
- 10<sup>11</sup> Ω min. @ 125°C and rated WVDC

##### Working Voltage (WVDC):

- |      |                     |
|------|---------------------|
| Size | Working Voltage     |
| 0402 | - 50, 25 WVDC       |
| 0603 | - 200, 100, 50 WVDC |
| 0805 | - 200, 100 WVDC     |
| 1210 | - 200, 100 WVDC     |

##### Dielectric Working Voltage (DWV):

250% of rated WVDC

##### Equivalent Series Resistance Typical (ESR):

- 0402 - See Performance Curve, page 300
- 0603 - See Performance Curve, page 300
- 0805 - See Performance Curve, page 300
- 1210 - See Performance Curve, page 300

##### Marking

Laser marking EIA J marking standard (except 0603) (capacitance code and tolerance upon request).

##### MILITARY SPECIFICATIONS

Meets or exceeds the requirements of MIL-C-55681





TYPICAL  
SERIES RESONANT FREQUENCY  
"U" SERIES CHIP



# RF/Microwave Capacitors

## RF/Microwave COG (NP0) Capacitors

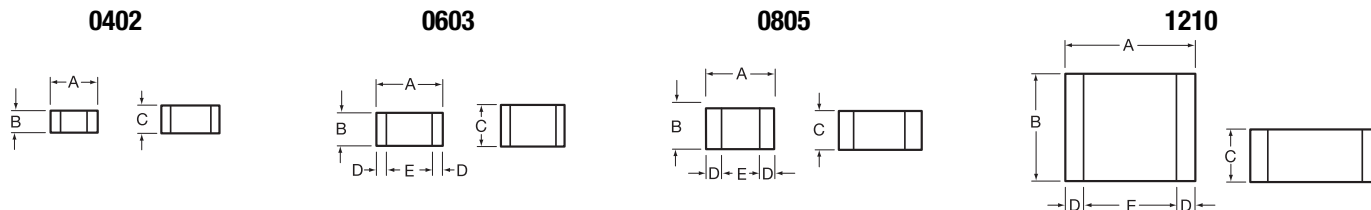
### Ultra Low ESR "U" Series, COG (NP0) Capacitors (Sn/Pb)



#### GENERAL INFORMATION

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#### HOW TO ORDER

**LD05**  
Case Size  
LD02 = 0402  
LD03 = 0603  
LD05 = 0805  
LD10 = 1210

**1**  
Voltage Code  
3 = 25V  
5 = 50V  
1 = 100V  
2 = 200V

**U**  
Dielectric =  
Ultra Low  
ESR

**100**  
Capacitance  
EIA Capacitance Code in pF.  
First two digits = significant figures or "R" for decimal place.  
Third digit = number of zeros or after "R" significant figures.

**J**  
Capacitance  
Tolerance Code  
B = ±0.1pF  
C = ±0.25pF  
D = ±0.5pF  
F = ±1%  
G = ±2%  
J = ±5%  
K = ±10%  
M = ±20%

**A**  
Failure Rate  
Code  
A = Not  
Applicable

**B**  
Termination  
B = 5% min lead

**2**  
Packaging  
Code  
2 = 7" Reel  
4 = 13" Reel  
9 = Bulk

**A**  
Special Code  
A = Standard

Not RoHS Compliant

#### ELECTRICAL CHARACTERISTICS

##### Capacitance Values and Tolerances:

Size 0402 - 0.2 pF to 22 pF @ 1 MHz  
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0603	- 200, 100, 50 WVDC
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##### Dielectric Working Voltage (DWV):

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##### Equivalent Series Resistance Typical (ESR):

040 - See Performance Curve, page 306  
0603 - See Performance Curve, page 306  
0805 - See Performance Curve, page 306  
1210 - See Performance Curve, page 306

##### Marking:

Laser marking EIA J marking standard (except 0603) (capacitance code and tolerance upon request).

##### Military Specifications

Meets or exceeds the requirements of MIL-C-55681

# RF/Microwave Capacitors

## RF/Microwave C0G (NP0) Capacitors

### Ultra Low ESR "U" Series, C0G (NP0) Capacitors (Sn/Pb)



#### CAPACITANCE RANGE

Cap (pF)	Available Tolerance	Size			
		LD02	LD03	LD05	LD10
0.2	B,C	50V	N/A	N/A	N/A
0.3	↓ B,C	↓	↓	↓	↓
0.4					
0.5	B,C	↓	↓	↓	↓
0.6	B,C,D	↓	↓	↓	↓
0.7	↓ B,C,D	↓	↓	↓	↓
0.8					
0.9	B,C,D	↓	↓	↓	↓

Cap (pF)	Available Tolerance	Size			
		LD02	LD03	LD05	LD10
1.0	B,C,D	50V	200V	200V	200V
1.1	↓ B,C,D	↓	↓	↓	↓
1.2					
1.3					
1.4					
1.5					
1.6					
1.7					
1.8					
1.9					
2.0					
2.1					
2.2					
2.4					
2.7					
3.0	↓ B,C,D B,C,J,K,M	↓	↓	↓	↓
3.3					
3.6					
3.9					
4.3					
4.7					
5.1					
5.6					
6.2					
6.8					

Cap (pF)	Available Tolerance	Size			
		LD02	LD03	LD05	LD10
7.5	B,C,J,K,M	50V	200V	200V	200V
8.2	↓ B,C,J,K,M F,G,J,K,M	↓	↓	↓	↓
9.1					
10					
11					
12					
13					
15					
18					
20					
22					
24					
27	↓ 50V N/A	↓	↓	↓	↓
30					
33					
36					
39					
43					
47					
51					
56					
68					
75					
82					
91					

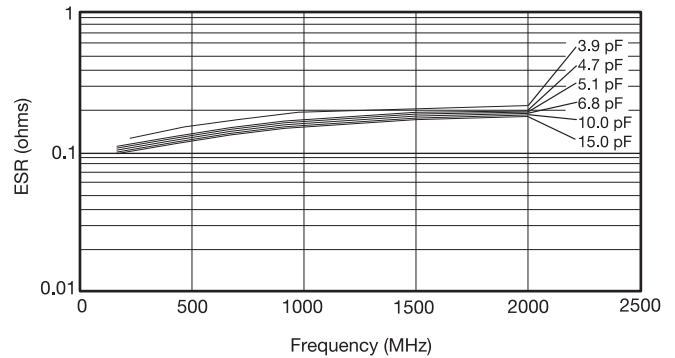
Cap (pF)	Available Tolerance	Size			
		LD02	LD03	LD05	LD10
100	F,G,J,K,M	N/A	100V	200V	200V
110	↓ F,G,J,K,M	↓	↓	↓	↓
120					
130					
140					
150					
160					
180					
200					
220					
270					
300	↓ 100V 50V N/A	↓	↓	↓	↓
330					
360					
390					
430					
470					
510					
560					
620					
680					
750					
820					
910					
1000	F,G,J,K,M	↓	↓	↓	↓

#### ULTRA LOW ESR, "U" SERIES

TYPICAL ESR vs. FREQUENCY  
0402 "U" SERIES



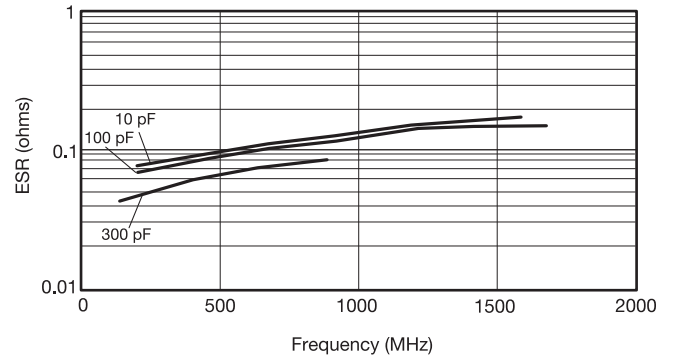
TYPICAL ESR vs. FREQUENCY  
0603 "U" SERIES



TYPICAL ESR vs. FREQUENCY  
0805 "U" SERIES

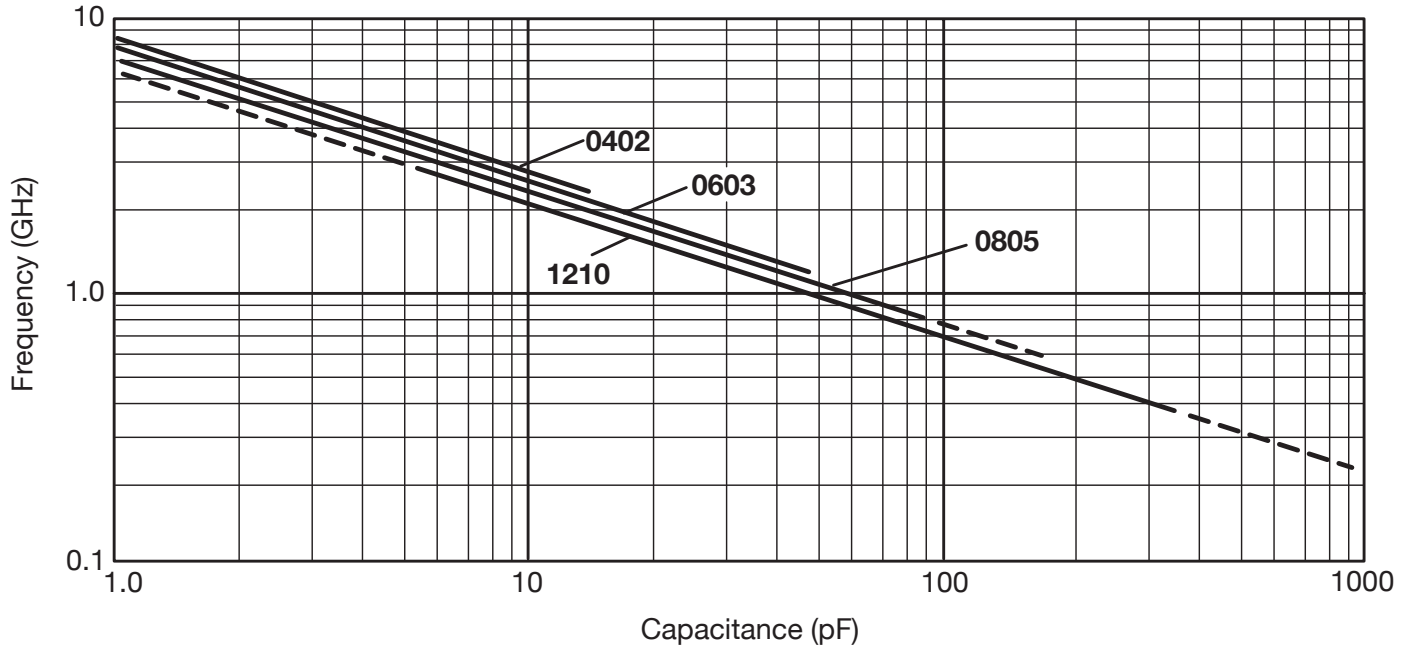


TYPICAL ESR vs. FREQUENCY  
1210 "U" SERIES



ESR Measured on the Boonton 34A

TYPICAL  
 SERIES RESONANT FREQUENCY  
 "U" SERIES CHIP



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